ELEGANT TERN (*Sterna elegans*)

Kathy C. Molina, Section of Ornithology, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007; kmolina@nhm.org

Criteria Scores

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
0	0	5	10	5	10	15

Special Concern Priority

Currently considered a Bird Species of Special Concern (breeding), Third Priority. Included on CDFG's (1992) unprioritized list and on Remsen's (1978) original list as Third Priority.

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment (Sauer et al. 2000).

General Range and Abundance

A monotypic species with breeding colonies concentrated at just a few locations along the Pacific coast from southern California south to Baja California where small colonies form at Ojo de Liebre and San Ignacio lagoons (Massey and Palacios 1994), and in the northern Gulf of California, at Isla Montague (Palacios and Mellink 1993), where breeding is not an annual occurrence (E. Mellink pers. comm.) south to Isla Raza (AOU 1998), where 90% to 97% of the global population nests (Burness et al. 1999). Everett and Anderson (1991) reported that the Raza population probably contained 80,000 pairs during the 1980s. Burness et al. (1999) more recently estimated the global population to contain about 30,000 pairs. Bred formerly on several other islands in the northern Gulf of California, including Cerralvo, San Pedro Martir, San Jorge, and others off the coast of southern Sonora (van Rossem 1945). Large pulses of post-breeding birds appear regularly in late summer and fall along the California coast from San Diego north to Marin Co. and in most years, Humboldt Co. (Harris 1991); in exceptional years such as 1983, 1989 and 1990 (and perhaps related to El Nino oceanographic conditions) they have ranged as far north as Washington state and British

Columbia (Collins et al. 1991). Winters along the Pacific coast of South America from Callao, Peru to Chile (AOU 1957).

Seasonal Status in California

Occurs primarily in two seasonal roles: (1) as a spring and summer breeding visitor on the southern coast, and (2) as a late summer and fall post-breeding visitor along the entire coast. Breeding birds arrive as early as early March and colony attendance peaks from early April through July. After breeding, disperses northward along coast from mid-July and August through early November; a few birds remain well into December (Garrett and Dunn 1981, Unitt 1984, Small 1994). Recorded casually through the remainder of the winter (Garrett and Dunn 1981).

Historical Range and Abundance in California

Grinnell and Miller (1944) considered the Elegant Tern a “rare autumn visitor from the south” occurring irregularly from August to October) along the coast from the Mexican border north to San Francisco Bay (Grinnell and Miller 1944).

Recent Range and Abundance in California

The status and abundance of the Elegant Tern has undergone dramatic change over the last 50 years, with the species now breeding in coastal southern California from south San Diego Bay, San Diego Co. north to Bolsa Chica, Orange Co. and the Port of Los Angeles, Los Angeles Co. Following an increasing trend in the number of post-breeding birds arriving from May through July beginning in the early 1950s (Small 1994), the Elegant Tern colonized the Western Saltworks in south San Diego Bay in 1959 (Burness et al. 1999). Based on reports published by Audubon Field Notes, 30 to 60 pairs bred nearly annually at the saltworks during the 1960s. By 1982, the population had increased to about 800 pairs (Unitt 1984, Burness et al. 1999). In recent years, colony size was highly variable with about 1800 pairs in 1995 (Burness et al. 1999), fewer than 100 pairs in 1998 (Terp and Pavelka 1999), and over 3000 pairs in 1999 (Patton 1999). Overall, however, the number of breeding Elegants has generally diminished in south San Diego Bay.

In 1987, Elegant Terns first established nests in the estuary of the Bolsa Chica Ecological Reserve. Breeding there nearly annually, their numbers increased to 1800 pairs in 1993 (Gallagher 1997) and 4000 pairs in 1995 (Burness et al. 1999). In 1998, 3000 Elegant Tern pairs colonized a dredged fill site at the Port of Los Angeles, abandoning all attempts at Bolsa Chica that year (FN 52:503). Elegants did not re-occupy the Port of Los Angeles until 2000 when over 3000 pairs nested (NAB 54:423). Based on reports published by North American Birds/Field Notes, the apparent annual breeding population for the state from 1997-2001 ranged from 3000-4600 pairs.

The Elegant Tern is common to abundant along the Pacific coast from San Diego north to San Francisco Bay and Point Reyes in July through October (Collins et al. 1991). They are now also common on the Channel Islands. The peak of their abundance, occurring in August and September, is a result of an influx of breeders from the Gulf of California (Small 1994). Their number decreases through October and November, becoming rare by mid-December (Unitt 1994).

Ecological Requirements

The ecological requirements of Elegant Terns have previously been described only in terms of their general habitat use. The nesting habitat is generally open and bare, with little or no vegetation. In the Gulf of California, Elegant Terns nest on low, sparsely vegetated islands of volcanic rock with a pebble substrate (Burness et al. 1999), or among dry silty mudflats with substrate composed of shell fragments (Palacios and Mellink 1993). In California, colonies establish on isolated and bare earthern dikes surrounding evaporation ponds (Schaffner 1985), and on dredged sand islands containing minimal vegetation, in estuaries and harbors (Collins 1991, Burness et al. 1999).

Nest and colony defense may be less developed in the Elegant Tern than in other larids, and colony establishment may therefore require the presence of nesting aggregations of other more aggressive larids such as Caspian and Gull-billed terns, Black Skimmers, or as on Isla Raza, Heermann's Gulls (Burness et al. 1999). Areas for nesting need to be of sufficient size to accommodate large aggregations of birds.

Studies of diet on breeding grounds, reviewed in Burness et al. (1999), indicate priniciple prey species derived from five fish families: Engraulidae (anchovies), Clupeidae (sardines), Atherinidae (silversides), Gobiidae (gobies), and Scombridae (mackerels). The northern anchovy (*Engraulis mordax*) is the primary component of diet for colonies at San Diego Bay, Bolsa Chica and Isla Raza (Burness et al. 1999). Elegant Terns forages over marine or estuarine habitats, rarely in freshwater (Burness et al. 1999). May forage offshore or within bays and lagoons, but generally within a few kilometers of the coastline; distance from shore varies with season and location (Schaffner 1985).

Threats

During the breeding season, Elegant Terns are limited to 2 to 3 colony sites concentrated along the immediate coast of densely populated southern California. Whereas the majority of these locations fall under the jurisdiction of federal and state wildlife agencies, the number, size and integrity of nesting and foraging habitats are potentially threaten by continuing urban development around these

sites (Burness et al. 1999). Because of their low tolerance to disturbances, and high susceptibility to terrestrial predators, the proximity of Elegant Tern nesting habitats to populations of feral and domestic pets accompanying areas of dense human population, particularly apparent at south San Diego Bay, threaten colony reproductive success. Because offspring form dense "nursery" flocks or creches, they are particularly susceptible to colony intrusion by canids. Repeated disturbance to breeding colonies as a result of human intrusion can have deleterious effects on seabird productivity and colony site fidelity. All California breeding colonies are on man-made substrates, and therefore require continued funding to satisfactorily manage and maintain them as productive nesting sites.

Catastrophic oil spills and continued inputs of urban pollution and industrial wastes may degrade important foraging areas. Because their primary prey is anchovy, Elegant Tern populations may directly complete with commercial harvests of such a bait fishery. Although the abundance of Elegant Terns in southern California is believed to be closely related to the abundance of anchovy (Schaffner 1986), large fluctuations in ocean temperatures may interrupt and adversely affect local abundance patterns for this prey species.

Contamination by pesticides and other toxic compounds are not believed to be important factors in reproductive success, nor an important source of mortality (Burness et al. 1999). No information on habitat quality in wintering areas.

Management and Research Recommendations

- Because of their apparent level of vulnerability (> 90% of population breeding at a single site in Baja California, Mexico), the Elegant Tern should be designated as Endangered (Clapp et al. 1993). For this same reason they are also considered "Near Threatened" by BirdLife International (2000).
- Maintain and enhance isolation of nesting colonies, particularly those in San Diego Bay by eliminating connections to main perimeter levee. At all California colony sites, Elegant

Terns derive de-facto protections because of their proximity to breeding colonies of Endangered California Least Terns.

- Secure long-term protection of a nesting colony site in the Port of Los Angeles.
- Conduct demographic studies addressing population dynamics and structure, fecundity and survival.
- Protect water quality in highly vulnerable areas such as bays and estuaries that provide important foraging habitat.
- Continue to monitor local oceanographic conditions and northern anchovy populations.
- Identify key wintering sites in Central and South America.

Monitoring Needs

Because of its highly restricted breeding range, occupation of few nesting sites, special nesting requirements, and extirpation from several previously known breeding sites in Mexico, the state's breeding populations of Elegant Terns should be monitored on an annual basis. More widespread surveys to include locations where the species bred previously should be performed at 3 to 5 year intervals.

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